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ABSTRACT

This Vocational Instructional Management System (VIMS) module illustrates instructional and cognitive strategies that can be used to teach special needs students vocational competencies in three areas of health occupations: (1) identification of pulse sites; (2) taking a radial pulse; and (3) converting ounces to cubic centimeters (cc). Three definitions, 11 frequently asked questions, 1 example, and 7 references are included. The following questions are answered: What is the difference between instructional and cognitive learning strategies? Why should I use cognitive or learning strategies? Who needs to learn cognitive strategies? What instructional strategy could be used for teaching identification of pulse site? What cognitive strategy could be used for learning pulse sites? What instructional and cognitive strategy could be used to teach students how to check a radial pulse with the patient lying in bed? What cognitive strategy teaches the competency of converting ounces to ccs? and Where can I get more information about both strategies? (Four sources are listed.) An example illustrating sites for taking a pulse is included. (NLA)

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Strategies for Students With Special Needs in Health Occupations

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Abstract

This module illustrates instructional and cognitive strategies that can be used to teach and learn vocational competencies in the area of health occupations.

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Overview

Students are frequently presented with new information that needs to be learned. Students with special needs often lack strategies for acquiring new skills. In health occupations classes and clinical settings students may find it difficult to remember all the many details required to provide appropriate patient care. Instructional strategies provided by the teacher may enable the students to recall important information. Cognitive strategies may better enable the student to not only recall that information, but also utilize it in a number of settings.

This module will explore instructional and cognitive strategies for teaching and learning three skills: identification of pulse sites, taking a radial pulse and converting ounces to cc. (VIMS Competencies I-012, T-001, S-001).

Terminology

Instructional/ Teaching Strategy	Techniques utilized by the teacher to enable students to learn more effectively.
Cognitive/Learning Strategy	Techniques the student uses to acquire knowledge.
Strategy	A strategy is a planned, deliberate activity used to acquire knowledge (Reid, 1988).

Frequently Asked Questions

Q. What is the Difference in Instructional/Teaching and Cognitive/Learning Strategies?

A. Teachers utilize strategies in daily lessons. Some students require a variety of strategies to be used by the teacher so new information can be acquired. These are instructional strategies. The importance of an education, however, is to insure that students can **use** new information. Cognitive strategies thus, provide those techniques that allow students to use this new knowledge in other settings.

Q. Why Should I use Instructional Strategies?

A. Information presented in class should be a vehicle for knowledge acquisition. A teacher who uses strategies in daily instruction assists students in more effectively learning that information.

Q. Why Should I Teach Cognitive Strategies?

A. Though we often speak of the teaching/learning partnership, we most frequently do something **to** the learner (Kusler, 1982). We must begin to believe that lasting change will affect the learners, and this change can take place in our classrooms as we utilize both instructional and cognitive strategies for teaching students to learn **how** to learn in new environments. Learning to utilize strategies provides students with the skills needed to function in a number of settings. This important task develops with the acquisition of cognitive strategies.

Q. Who Needs to Learn Cognitive Strategies?

A. All learners need to be taught strategies for use in processing and retaining information. Learners with special needs often appear to be passive, unmotivated students with little use of strategies, poor memory functioning and limited prior knowledge. It is important to believe that passive learners can become active learners. This change can happen by teaching students to use strategies. These strategies must be modeled by the teacher to enable students to acquire the strategy effectively.

Q. What is an Example of an Instructional/Teaching Strategy That Could be Used for Teaching Identification of Pulse Sites?

A. Pulse sites lend themselves easily to graphic presentation. Part-to-whole relationships can best be illustrated with a web or outline. Graphic organizers such as a web can help students to "locate, select, sequence, integrate and restructure information . . . " (Jones, Palincsar, Ogle & Carr, 1987, p.38). Graphic organizers can be used to promote metacognitive awareness through questions and discussion, self-questioning, thinking aloud and helping students reflect on and examine their own assumptions (Black & Black, 1990).

Using the graphic organizer of webbing (see Example A in Resources), allows learning activities to focus on matching the pulse site names with locations of pulse sites on the body. This can be accomplished through the use of worksheets, with the use of matching cards, on the student's own body (e.g. site name labels taped onto the body).

These instructional strategies may help the student remember locations of various pulse sites through the tactile/kinesthetic as well as visual stimulus presentation. Supplementary methods such as these assist students to recall such information when necessary.

Q. What is an Example of a Cognitive/Learning Strategy That Could be Used for Learning Pulse Sites?

A. Self-questioning allows students to ask questions about pulse sites thus assisting in remembering the locations. A game such as Jeopardy might be developed by student teams. The questions to be asked would be answered by identifying the correct pulse sites. The jeopardy questions might include:

The pulse in the middle of the arm.

What is the Brachial pulse?

The pulse in the lower thigh.

What is the popliteal pulse?

The pulse on the top or instep of the foot.

What is the dorsalis pedis pulse?

The pulse located on the side of the neck.

What is the carotid artery?

Q. What is Another Cognitive Strategy That Might be Used to Help Students Learn Places to Check Pulses?

A. Using visual overlays may also help students remember the pulse sites. For example, when identifying the pulse site on the side of the neck (the carotid artery), one might place a carrot next to the artery site. The word association between the picture of the "carrot" and the "carotid" artery may provide a visual cue for students who have difficulty remembering words alone. A small woman might be placed next to the femoral artery on the inside, upper thigh area. Once again, the relationship between "female" and "femoral" might assist the student in remembering the name of the artery in this location.

Q. What is an Example of an Instructional Strategy That can be Used to Teach Students how to Check a Radial Pulse With the Patient Lying in bed?

A. Taking a pulse involves a sequence of steps. This can be presented in a step or chain chart graphically, including drawings to illustrate each step. The instructor may choose to record a variety of pulses over a monitor and allow students to learn to count accurately from listening as opposed to seeing. Once students are familiar with each step in the sequence, a cognitive strategy can be taught to allow students to remember the sequence.

Q. What is an Example of a Cognitive Strategy That can be Used to Teach Students how to Check a Radial Pulse With the Patient Lying in bed?

A. Once the student is familiar with each step of the sequence, a mnemonic acronym can be constructed to ensure recall. Mnemonics are reconstructions of content to render it more meaningful, and to link unknown facts with students prior knowledge. This enriches learning and facilitates recall in new situations (Scruggs & Mastropieri, 1990; Mastropieri & Scruggs, 1990).

The acronym "APPULSEA" (phonetically "A-Pulse") can be constructed from the first letter in the first word of each step in the pulse taking process. This is illustrated as follows:

Acronym	*Steps*	
A	1.	Ask the patient to adjust his-her arm.
P	2.	Place your three middle fingers on the inside of the patient's wrist in a line with the thumb.
P	3.	Press lightly until you feel the beat.
U	4.	Understand that you will count the beats which you feel during one minute.
L	5.	Look at the second hand on your watch to begin the count at the start of one minute.
S	6.	Stop the count at the end of one minute.
E	7.	Enter the count on the patient's record.
A	8.	Adjust the patient's bed.

Acronyms work best when they are elaborated with the basic content. In this case the activity of pulse taking is guided by the word "A-Pulse-A." Once the acronym is recalled the recall of the entire activity sequence will follow (Scruggs & Mastropieri, 1990).

Q. What is an Example of a Cognitive Strategy to Teach the Competency of Converting Ounces to ccs?

A. Volume measurement skills are significant in health occupations. Metric to English conversions are an important competency in the area of health occupations. Metric measurement may be taught by utilizing problem solving strategies. Problem solving strategies can be very effective for measurement and conversions. The following is a 10-step problem solving strategy. Each step is in the form of a question to which the student constructs an answer.

Problem: *Each student in the following group had a container with different amounts of water in them. How many cc's of water did the group have in all?*

Bill	4 oz.
Mary	120 cc.
Jim	.5 oz.
Ann	90 cc.
Beth	15 cc.
Walter	2 oz.

Question		*Answer*	
1.	What is the main problem?	1.	Finding out the total amount of water.
2	What questions are asked?	2.	The total cc's of water.
3.	What are the important facts?	3.	Mixed measures require conversions.
4.	What do you need to know to solve the problem?	4.	1 oz. = 30 cc. Convert from oz. to cc. by multiplying by 30.
5.	Tell in your own words how you will solve the problem.	5.	Convert all ounces to ccs. Then add all the ccs.
6.	Write a number sequence for the solution.	6.	*Step One:* Multiply 4 x 30 = 120 cc .5 x 30 = 15 cc 2 x 30 = 60 cc *Step Two:* Add 120 cc 120 cc 15 cc 90 cc 15 cc 60 cc
7.	Estimate your answer.	7.	About 400 cc
8.	Compute your answer.	8.	420 cc
9.	Compare estimate with computation.	9.	420 cc vs. 400 cc
10.	Give your answer in a complete sentence.	10.	The group of students had 420 cc's of water in all.

(Overholt, Rincon & Ryan, 1984)

Q. Where can I get More Information About Both Strategies?

A. Articles are being written in nearly every current periodical regarding strategies and their use in the classroom. Below is a list of some resources for further information.

Instructional Strategies for Special Education Students in Regular Vocational Classes: A Preservice Handbook (1988), published by:

Resources in Special Education
650 University Avenue, Room 201
Sacramento, CA 95825

Models of Teaching (1986) (3rd edition) by Bruce Joyce and Marsha Weil, published by:

Prentice Hall, Inc.
Englewood Cliffs, NJ 07632

Teaching the Learning Disabled: A Cognitive Developmental Approach (1988) by Kim Reed, published by:

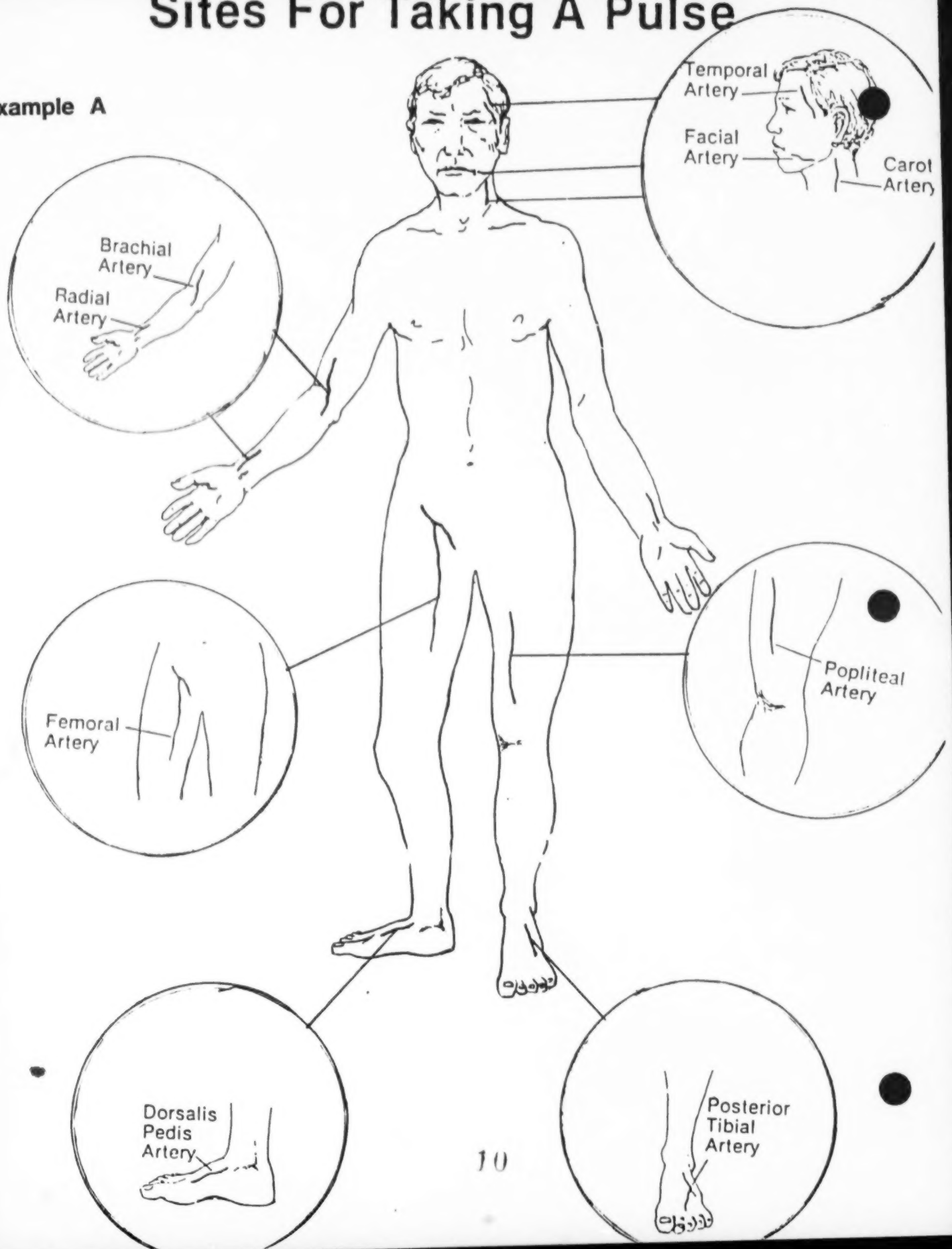
Allyn and Bacon, Inc.
160 Gould Street
Needham, MA 02194

A Guidebook for Teaching Study Skills and Motivation (1987) (2nd edition) by Bernice Jensen Bragstad and Sharyn Mueller Stumpf, published by:

Allyn and Bacon, Inc.
160 Gould Street
Needham, MA 02194

Sites For Taking A Pulse

Example A



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